

coding applications. These systems can be embodied in electronic devices or integrated circuits, such as application specific integrated circuits, field programmable gate arrays and/or digital signal processors. Alternatively, they can be embodied in computer programs that execute on personal computers, notebook computers, tablets, smartphones or computer servers. Such computer programs typically are stored in physical storage media such as electronic-, magnetic- and/or optically-based storage devices, where they may be read to a processor, under control of an operating system, and executed. And, of course, these components may be provided as hybrid systems that distribute functionality across dedicated hardware components and programmed general-purpose processors, as desired.

**[0105]** In addition, in the foregoing description, various features may be grouped or described together for the purpose of streamlining the disclosure. This disclosure is not to be interpreted as reflecting an intention that all such features are required to provide an operable embodiment, nor that the claimed embodiments require more features than are expressly recited in each claim. Rather, as the following claims reflect, subject matter may be directed to less than all of the features of any of the disclosed embodiments. Thus, the following claims are incorporated into the description, with each claim standing on its own as defining separately claimed subject matter.

**[0106]** Also, where certain claims recite methods, sequence of recitation of a particular method in a claim does not require that that sequence is essential to an operable claim. Rather, particular method elements or steps could be executed in different orders without departing from the scope or spirit of the invention.

**1.-28.** (canceled)

**29.** A video processor, comprising:

- a decoder for decoding an image from a compressed video sequence, wherein the compressed video sequence includes side information relating to a filter selection; and
- a format converter for converting the decoded image, including a color format converter and a plurality of upsampling filters, and wherein the side information is used at least in part to determine which of the plurality of upsampling filters are used to upsample a chroma channel of the decoded images.

**30.** The video processor of claim **29**, wherein the color format converter converts a luma-chroma color format into an RGB color format.

**31.** The video processor of claim **29**, wherein the side information indicates which of a plurality of possible upsample filters best matches a downsample filter selected from a plurality of downsample filters and used to encode the image in the compressed video sequence.

**32.** The video processor of claim **29**, wherein the side information is encoded in the compressed video sequence in a Supplemental Enhancement Information (SEI) message.

**33.** The video processor of claim **31**, wherein the SEI message is a post-filter hint SEI message.

**34.** The video processor of claim **31**, wherein the SEI message is a chroma resampling filter hint SEI message.

**35.** The video processor of claim **29**, wherein the side information includes a color transform matrix used in the color format converter.

**36.** The video processor of claim **29**, wherein the side information includes information about the filters used in a downsampling filter optimization process at an encoder for the compressed video sequence.

**37.** A method for processing compressed video, comprising:

- decoding an image from a compressed video sequence including extracting, from the compressed video sequence, side information specifying a filter selection relating to the image;
- converting a format of the image including converting a color format of the image and upsampling a chroma channel of the image, wherein the side information is used to determine which of a plurality of upsampling filters to use in the upsampling.

**38.** The method of claim **37**, wherein the converting a color format converts a luma-chroma color format into an RGB color format.

**39.** The method of claim **37**, wherein the side information indicates which of a plurality of possible upsample filters best matches a downsample filter selected from a plurality of downsample filters and used to encode the image in the compressed video sequence.

**40.** The method of claim **37**, wherein the side information is encoded in the compressed video sequence in a Supplemental Enhancement Information (SEI) message.

**41.** The method of claim **40**, wherein the SEI message is a post-filter hint SEI message.

**42.** The method of claim **40**, wherein the SEI message is a chroma resampling filter hint SEI message.

**43.** The method of claim **37**, wherein the side information includes a color transform matrix used in the converting a color format.

**44.** The method of claim **37**, wherein the side information includes information about the filters used in a downsampling filter optimization process at an encoder for the compressed video sequence.

**45.** A non-transitory computer readable medium comprising instructions that, when executed on a computer, cause the computer to:

- decode an image from a compressed video sequence including extracting, from the compressed video sequence, side information specifying a filter selection relating to the image;
- convert a format of the image, where the converting includes converting a color format of the image and upsampling a chroma channel of the image, wherein the side information is used to determine which of a plurality of upsampling filters to use in the upsampling.

**46.** The medium of claim **45**, wherein the color format converter converts a luma-chroma color format into an RGB color format.

**47.** The medium of claim **45**, wherein the side information includes a color transform matrix used in the color format converter.

**48.** The medium of claim **45**, wherein the side information includes information about the filters used in a downsampling filter optimization process at an encoder for the compressed video sequence.

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